

In the Claims:

This listing of claims will replace all prior claim lists in this application.

Listing of Claims

1. (Previously presented) An aqueous anisotropic copper etching agent consisting essentially of potassium hydrogen peroxomonosulfate having a concentration within a range of about 0.08 to about 2.0 mol/l, and acetic acid, said etching agent etching the copper at an approximately uniform rate throughout the etching process, wherein the acetic acid functions as a wetting agent, and wherein the acetic acid is within a range of about 10 wt.% to about 75 wt.% relative to the potassium hydrogen peroxomonosulfate.
- 2.-3. (Cancelled)
4. (Withdrawn) An etching agent for a laminated film of a titanium film and a copper film comprising an aqueous solution containing potassium hydrogen peroxomonosulfate and hydrofluoric acid.
5. (Withdrawn) An etching agent for a laminated film of a molybdenum film and a copper film comprising an aqueous solution containing potassium hydrogen peroxomonosulfate, phosphoric acid and nitric acid.
6. (Withdrawn) An etching agent for a laminated film of a chromium film and a copper film comprising an aqueous solution containing potassium hydrogen peroxomonosulfate and hydrochloric acid.
7. (Withdrawn) An etching agent for a laminated film of a titanium film and a copper film comprising an aqueous solution containing a peroxomonosulfate salt, hydrofluoric acid, and hydrochloric acid or a chloride.
8. (Withdrawn) An etching agent for a laminated film of a titanium film and a copper film comprising an aqueous solution containing a peroxosulfate salt and a fluoride.

9. (Withdrawn) An etching agent for a laminated film of a titanium film and a copper film according to Claim 7, wherein said peroxosulfate salt comprises any one or more compounds selected from KHSO_5 , NaHSO_5 , $\text{K}_2\text{S}_2\text{O}_8$, $\text{Na}_2\text{S}_2\text{O}_8$ and $(\text{NH}_4)_2\text{S}_2\text{O}_8$.

10. (Withdrawn) An etching agent for a laminated film of a titanium film and a copper film according to Claim 7, wherein said chloride comprises an alkali metal chloride or ammonium chloride.

11. (Withdrawn) An etching agent for a laminated film of a titanium film and a copper film according to Claim 8, wherein said peroxosulfate salt comprises any one or more compounds selected from KHSO_5 , NaHSO_5 , $\text{K}_2\text{S}_2\text{O}_8$, $\text{Na}_2\text{S}_2\text{O}_8$ and $(\text{NH}_4)_2\text{S}_2\text{O}_8$.

12. (Withdrawn) An etching agent for a laminated film of a titanium film and a copper film according to Claim 8, wherein said fluoride comprises an alkali metal fluoride or ammonium fluoride.

13.-16. (Cancelled)

17. (Previously presented) An etching agent according to claim 1, wherein said etching agent selectively etches copper.

18. (Previously presented) An anisotropic copper etching agent for anisotropically etching a copper layer having an overlying mask pattern in an etching process, the etching agent consisting essentially of an aqueous solution including potassium hydrogen peroxomonosulfate having a concentration within a range of about 0.08 to about 2.0 mol/l and acetic acid within a range of about 10 wt.% to about 75 wt.% relative to the potassium hydrogen peroxomonosulfate, said etching agent etching the copper layer at an approximately uniform rate throughout the etching process, such that edges of the copper layer are substantially continuous with corresponding edges of the mask pattern.

19. (Previously presented) An etching agent according to claim 18, wherein said etching agent selectively etches the copper layer.

20. (Previously presented) An aqueous anisotropic copper etching solution, wherein the etching solution is formulated to anisotropically etch a copper layer having a mask pattern thereon, the solution comprising potassium hydrogen peroxomonosulfate and acetic acid, wherein the acetic acid continuously wets exposed surfaces of the copper layer and the potassium hydrogen peroxomonosulfate uniformly etches the copper layer, such that the copper layer is etched to substantially the same dimensions as the mask pattern, and wherein the acetic acid is within a range of about 10 wt.% to about 75 wt.% relative to the potassium hydrogen peroxomonosulfate.

21. (Previously presented) The aqueous anisotropic copper etching solution of claim 20, wherein the solution comprises a potassium hydrogen peroxomonosulfate concentration of about 0.08 to about 2.0 mol/l.

22. (Previously presented) The aqueous anisotropic copper etching solution of claim 21, wherein the solution comprises a weight ratio of acetic acid to potassium hydrogen peroxomonosulfate of about 10% to about 75%.

23. (Previously presented) The aqueous anisotropic copper etching solution of claim 20, wherein the copper layer has a thickness of about 100nm to about 200nm.

24. (Previously presented) The aqueous anisotropic copper etching solution of claim 20, wherein the solution etches the copper layer such that edges of the copper layer are substantially continuous with corresponding edges of the mask pattern.

25. (Previously presented) The aqueous anisotropic copper etching solution of claim 20, wherein the copper layer is layer comprises a gate electrode.

26. (Previously presented) The aqueous anisotropic copper etching solution of claim 20, wherein the copper layer comprises a wiring layer.

27. (Previously presented) An aqueous etching agent consisting essentially of potassium hydrogen peroxomonosulfate having a concentration within a range of about 0.08 to about 2.0 mol/l, and acetic acid, wherein the acetic acid is within a range of about 10 wt.% to about 75 wt.% relative to the potassium hydrogen peroxomonosulfate.